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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/785,417

02/20/2001

Yasutaka Nishida

11995/1

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7590

02/14/2003

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EXAMINER

BEACHAM, CHRISTOPHER R

ART UNIT

PAPER NUMBER

2653

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/785,417

Applicant(s)

NISHIDA ET AL.

Examiner

Christopher R. Beacham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 10/11/2002 was filed after the mailing date of the first Office Action on 10/08/2002. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US 5,584,727) in view of Nakamigawa et al (JP 10-003643).

2. Regarding claim 1, Tanaka et al show a perpendicular magnetic recording system (see Figure 5) comprising a perpendicular magnetic recording medium 2 having a soft magnetic layer 2b and a magnetic recording head 30 for performing magnetic recording on said perpendicular magnetic recording medium, said magnetic recording head having a plurality of poles including a main pole 511 for finally recording a magnetization reversal on said perpendicular magnetic recording medium 2.

Tanaka et al do not exemplify the perpendicular magnetic recording system satisfying the following equation:

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$$T_{b1} < (B_{s1} \times T_m \times T_{ww}) / 2(B_{s2} \times (T_m + T_{ww})),$$

where T_{b1} is the thickness of said soft magnetic underlayer in said perpendicular magnetic recording medium, B_{s2} is the saturation flux density of the same, T_m is the thickness of said main pole along a track direction in the vicinity of its floating surface, T_{ww} is the track width of the same, and B_{s1} is the saturation flux density of the same. However, Tanaka et al disclose the following values: $B_{s1} = 1.52$ T (col. 7, line 20); $T_m = 5$ μm ; and $T_{ww} = 1$ μm (col. 9, lines 1-3). *2.5 or less*

Nakamigawa et al disclose a perpendicular magnetic recording medium with the following values: $T_{b1} = 0.5$ μm (page 2, section 0007) and $B_{s2} = 0.50$ T (5,000 G) (page 3, section 0012). *0.2 μm* *(1.1 T) (5000 G)*
1.1 T

0.27 μm Substituting the specified values into the above equation results a $T_{b1\text{calculated}} = 1.27$ μm , which is greater than 0.5 μm . Therefore, the equation is satisfied, i.e., 1.27 $\mu\text{m} > 0.5$ μm .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the perpendicular magnetic recording system of Tanaka ⁷²⁷ et al with the perpendicular magnetic recording medium as taught by Nakamigawa et al. *Tanaka et al '927*

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the perpendicular magnetic recording system of Tanaka et al with the perpendicular magnetic recording medium as taught by Nakamigawa et al in order to increase the recording density of the perpendicular magnetic recording medium (Nakagimawa; Abstract) and to show the relationship of the

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saturation flux density to the thickness of the soft magnetic underlayer (Nakagimawa; section 0012).

3. Regarding claim 2, substituting the specified values into the following equation

$T_{b1} > 0.25(B_{s1} \times T_m \times T_{ww}) / 2(B_{s2} \times (T_m + T_{ww}))$, where $(B_{s1} \times T_m \times T_{ww}) / 2(B_{s2} \times (T_m + T_{ww})) = 1.27 \mu\text{m}$ then $0.25 \times 1.27 \mu\text{m} = 0.32 \mu\text{m}$. The thickness, T_{b1} , of the soft magnetic underlayer is $0.5 \mu\text{m}$, which is greater than $0.32 \mu\text{m}$.

4. Regarding claims 3 and 4, Tanaka et al disclose a track width, T_{ww} , less than $0.5 \mu\text{m}$ (col. 9, lines 60-63).

5. Regarding claims 5-7, Tanaka et al do not set forth the dimensions in these claims. However, as disclosed by the Applicant on page 9, lines 13-20, the satisfaction of the expression requires a distance of $0.5 \mu\text{m}$ or greater between the main and auxiliary poles.

6. Regarding claims 8-10, Nakamigawa et al disclose the thickness, T_{b1} , of the soft magnetic underlayer in the perpendicular magnetic recording medium is smaller than or equal to $0.2 \mu\text{m}$ (page 2, section 0007).

Response to Arguments

7. Applicant's arguments filed 01/09/2003 have been fully considered but they are not persuasive.

- First, the Applicant asserts on page 2:

"What is also clear is that there is suggestion in the prior art to combine the values disclosed by Tanaka and Nakamigawa. A skilled person would carefully consider whether a particular head would fit well with a particular medium before deciding on values such as T_{b1} , and he would never adopt values designed for disparate purposes. It is only from the teaching of Applicant's specification that one finds any suggestion of

combination. Without this, the alleged suggestion noted by the Examiner does not exist."

The Examiner maintains one of ordinary skill in the art at the time of the invention would have been motivated to substitute the recording medium of Tanaka et al with recording medium of Nakamigawa et al in order to increase the recording density of the perpendicular magnetic recording medium (Nakagimawa; Abstract) and to show the relationship of the saturation flux density to the thickness of the soft magnetic underlayer (Nakagimawa; section 0012).

- Second, the Applicant further asserts on page 2:

"The type of hindsight reconstruction engaged in by the Examiner, using the Applicant's specification to find a reason to combine the features of the references has long been recognized as improper."

In response to Applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning using the Applicant's specification, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

One of ordinary skill in the art at the time of the invention would have been motivated to substitute the recording medium of Tanaka et al with recording medium of Nakamigawa et al in order to increase the recording density of the perpendicular magnetic recording medium (Nakagimawa; Abstract) and to show the relationship of the

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saturation flux density to the thickness of the soft magnetic underlayer (Nakagimawa; section 0012).

- Last, the Applicant states on page 2:

“Absent Applicant’s teaching, the combining of these features is analogous to finding it obvious to construct a vehicle with a dump truck body and tires from a light car, just because both elements are known. In almost any combination invention, the individual elements making up the combination are known. That is why more than just collecting elements from the prior art is necessary.”

In this case, the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one of ordinary skill in the art would be motivated to make the proposed combination of the primary reference, Tanaka et al (US 5,793,574) and the secondary reference, Nakagimawa et al (JP 10-003643). *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re Simon*, 174 USPQ 114 (CCPA 1972); *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures, *In re Bozek*, 163 USPQ 545 (CCPA 1969).

Hence, the rejection of claims 1-10 is upheld.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Tanaka et al (US 5,486,967) is cited to show a magnetic disk memory system.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Beacham whose telephone number is (703) 605-4256. The examiner can normally be reached on M-F, 8: 00 am-5: 30 pm.

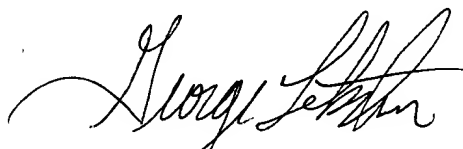
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

A handwritten signature in black ink, appearing to read "C.R. Beacham", with a long horizontal flourish extending to the right.

Christopher R. Beacham
Patent Examiner
Art Unit 2653
February 10, 2003

A handwritten signature in black ink, appearing to read "George J. Letscher", with a large, stylized initial "G" and a horizontal flourish.

GEORGE J. LETSCHER
PRIMARY EXAMINER